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ABSTRACT

The family and the school are important socializing environments throughout adolescence. Using longitudinal data, this report examines the effects on students of varying degrees of participation in school and family life. Degrees of participation include the extent of participation in family decisions, the extent of restriction on activities by formal rules at home, the extent of participation in classroom decisions, and the extent of self-direction in classroom instruction. The total population of students in selected grade levels at the elementary, middle, and senior high school levels were surveyed in the spring of 1973 and again in the spring of 1974. The two surveys yielded a longitudinal sample of 5,454 students for whom complete survey data were available. Results of analyses suggested that sequential and steady change in the direction of increased participation by youngsters in decision-making at home and at school may be essential for continued progress in developing mature attitudes and behaviors. It was clear that change in student behavior can be more fully understood with concurrent consideration of change in the real environmental demands for growth. Neither the student nor the socializing environment was static. (Author/RL)

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Report No. 301
December 1980

A LONGITUDINAL STUDY OF SCHOOL AND FAMILY EFFECTS ON STUDENT DEVELOPMENT

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The Johns Hopkins University

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through four programs to achieve its objectives. The Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelation of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed Student Team Learning Instructional processes for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Processes and Career Development program is studying transitions from high school to post secondary institutions and the actualization of labor market outcomes. The Studies in Delinquency and School Environments program is examining the interaction of school environments, school experiences, and individual characteristics in relation to in-school and later-life delinquency.

This report, prepared by the School Organization program, presents the results of three types of exploratory analyses with longitudinal data. The analyses examine the effects of family and school environments on student development.

Abstract

The family and the school are important socializing environments throughout adolescence. Using longitudinal data, this report examines the effects on students of varying degrees of participation in school and family life. Degrees of participation include the extent of participation in family decisions, the extent of restriction on activities by formal rules at home, the extent of participation in classroom decisions, and the extent of self-direction in classroom instruction.

The results of these and other analyses suggest that sequential and steady change in the direction of increased participation by youngsters in decision-making at home and at school may be essential for continued progress in developing mature attitudes and behaviors. It is clear that change in student behavior can be more fully understood with concurrent consideration of change in the real environmental demands for growth. Neither the student nor the socializing environment is static.

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This report is a limited preprint of a chapter to appear in S. A. Mednick and M. Harway (Eds.), Longitudinal Research in the United States (forthcoming). Parts of the report were presented at the annual meeting of the American Sociological Association, 1978.

Introduction

From year to year, at home and at school, adolescents experience increasing demands and opportunities for mature, self-directing behavior. For some students, these demands change more or less rapidly than is expected for their age group. In some cases, environments change as a result of purposeful manipulation. Schools may design programs that extend or restrict decision-making opportunities for youngsters; parents may broaden or moderate children's participation and responsibilities at home. Significant contrasts in the organization of school and family decision making provide research with unique opportunities to examine the influence of different authority structures on student development.

Family and school environments are complex. Following Blau (1975), we select aspects of the social structure that can be represented analytically. In this study we deal mainly with four measurable, manipulable aspects of the authority structure that differentiate student participation in school and family life. These aspects are the extent of participation in family decisions, the extent of restriction on activities by formal rules at home, the extent of participation in classroom decisions, and the extent of self-direction in classroom instruction. These aspects fall within the theoretical framework of Eckstein and Gurr (1975) who view the frequency and nature of participation of subordinates (students) and the responsiveness of superordinates (teachers or parents) as important elements of the structure of authority patterns.

Among the schools sampled for this study, some had revised the structure and process of teacher-student decision making to give students more responsibilities in class. For example, students in participatory classes chose more of their own academic activities,

worked in small groups without constant direction from teachers, monitored their own progress, and moved about the classroom more freely than students in traditional classes. Cross-sectional analyses already completed suggest that teacher-student shared authority for classroom decisions is linked in important ways to student nonacademic attitudes and to the kinds of student behaviors that are rewarded by teachers (Epstein and McPartland, 1975, 1979; McPartland and Epstein, 1977; McPartland, 1977; Epstein, 1981). Our research also extends knowledge on the importance of parent-child shared authority. Participation in decisions at home is positively related to student development on all academic and affective behaviors for which measures are available (Epstein and McPartland, 1977a, b).

Several substantive issues that pose methodological challenges are addressed in the research reports from this study:

The importance of authority structures and processes for research on effective school and family environments.

The effects of student participation at school and at home on diverse outcomes including achievement and affective measures.

The interaction of school and family experiences on diverse outcomes.

The longitudinal effects of contrasting school and family authority structures on student development.

The difference of effects on students and interpretations using the individual as the unit of analysis and using the classroom, grade level and school environments as the bases for contextual measures.

The comparison of cross-sectional and longitudinal analyses to describe effects on students.

The importance of transition points (change from elementary to middle school or middle to high school) and transition environments (change from innovative to traditional education and traditional to innovative education programs) for development of diverse outcomes.

The influence of authority structures on friendship selection and influence.

The practical implications of the research results for school and teacher's policies about the organization of the classroom.

Four substantive issues and methodological approaches are featured in the work completed to date to confront a controversy in the sociology of education that school effects have been underestimated or incomplete due to restricted theories, research design, and available data (McPartland and Karweit, 1979).

First, most research on school effects has not given attention to interaction effects (Cronbach and Snow, 1977). It may be that school effects are particularly impressive for some students. A guiding hypothesis for this study is that the effects of different classroom organizations on a student will depend on the student's earlier experiences at home and at school. Students from more participatory families may feel more comfortable in more participatory schools, and show greater progress on affective student outcomes. At the same time, students from less participatory home environments may make more progress if given such experiences in schoo especially on the outcome of self-reliance. Tests for such interaction effects can be enriched by longitudinal data on early school experiences, and by specific measures of congruence or incongruence of family and school environments.

Second, previous school effects research has all but ignored diverse outcomes of schooling that are less resistent to change than is achievement and more likely to be affected by experiences in contrasting environments (Averch et al., 1972; Jencks et al., 1972). In this study, attitudes, behaviors and indicators of success in school that are theoretically linked to variation in authority structures are examined, along with the traditional measures of standardized achievement test scores that continue to be of interest to educators and researchers.

Third, little attention has been given to more proximate measures of the organization of classrooms or family practices that may be the strongest influences on student outcomes (Karabel and Halsey, 1977;

Hurn, 1978; McDill and Rigsby, 1973; Marijoribanks, 1979). Typically, distal measures of school or district resources, formal organizational properties, and family socioeconomic status have been considered environmental variables. However, these properties may not be the sources of significant environmental effects on student development. In this study we use proximate measures of the organization of opportunities for and constraints on student participation in academic classrooms and in family settings.

Finally, few longitudinal studies of school effects or student development have been conducted (but see Bachman, 1969; Flanagan, 1971; Nesselroade and Baltes, 1974). In this study longitudinal data were collected to give consideration to patterns of adolescent development and to the accumulation of school and family effects across several years of schooling.

This chapter summarizes some of the explorations of longitudinal patterns and effects of home and school environments on student outcomes. Cross-sectional regression analyses yield coefficients that estimate the change expected on an outcome given one unit of change on an independent variable. Cross-sectional coefficients are interpreted also in terms of the advantage or disadvantage for a dependent measure attributable to a high or low score on an independent measure. Or, coefficients from cross-sectional regressions are interpreted as estimates of the predictability of an outcome. Longitudinal data can explicate cross-sectional coefficients with some "proofs" of the assumptions of change, advantage and predictability. Analyses are reported in this chapter that examine stability coefficients, levels of environmental change, and the use of initial environmental and dependent scores as covariates to explore patterns of association and influence of environments and outcomes.

Sample

Student Survey. The total population of students in selected grade levels at the elementary, middle, and senior high school levels were surveyed in the spring of 1973 and again in the spring of 1974. The students, initially in grades 4, 5, 6, 8 and 11, attended 21 elementary, 8 middle, and 5 high schools at the time of the first survey. After promotion to grades 5, 6, 7, 9 and 12, they attended 23 elementary, 10 middle, and 6 high schools. The sequenced cross-sectional and longitudinal surveys cover the period from preadolescence through adolescence. (See Nunnally, 1973, and Nesselroade and Baltes, 1974 for the benefits of this design.)

Table 1 presents the sample sizes and response rates for both student surveys by grade level. Ninety-three percent and 89% of the registered students were reached in the first and second surveys, respectively, with 75% included in the longitudinal sample. Only one survey administration per school was permitted, so follow-ups of absent or relocated students were not possible. Grade 12 suffered from a combination of problems including students who attended a Vocational-Technical Center part-time, students who dropped out, and some who graduated early. These students were not present for the surveys, although they were registered students. Even with these problems, the characteristics of the sample of 12th graders were not substantially affected and the sample size remains large enough to be useful in analyses.

The two surveys yielded a longitudinal sample of 5,454 students for whom complete survey data are available, and smaller samples of students who were present only at one of the survey administrations.

TABLE 1

Samples and Response Rates for Survey I and Survey II

Time of Survey and Grade 1/	Number of Students in Survey	Percent in Longitudinal Sample	Official Enrollment Survey I (Spring '73)	Official Enrollment Survey II (Spring '74)	Response Rate Wave I	Response Rate Wave II
I 4 only 2/	364					
II 5 only	385					
I 4 & II 5	1315	78%				
I 4 total	1679		1716		98%	
II 5 total	1700			1830		93%
I 5 only	304					
II 6 only	399					
I 5 & II 6	1299	81%				
I 5 total	1603		1652		97%	
II 6 total	1698			1782		95%
I 6 only	306					
II 7 only	358					
I 6 & II 7	1212	80%				
I 6 total	1518		1629		93%	
II 7 total	1570			1692		93%
I 8 only	359					
II 9 only	419					
I 8 & II 9	1038	74%				
I 8 total	1397		1518		92%	
II 9 total	1457			1670		93%
I 11 only	457					
II 12 only	345					
I 11 & II 12	590	56%				
I 11 total	1047		1276		82%	
II 12 total	935			1260		74%
ALL GRADES COMBINED:						
Wave I only	1790					
Wave II only	1906					
Waves I and II	5454	75%				
Wave I total	7244		7791		93%	
Wave II total	7360			8234		89%

1. Roman numerals indicate time of survey: I = Spring of 1973; II = Spring of 1974. Arabic numbers indicate grade level at time of survey (e.g. 4 = grade 4, etc.).

2. The lines labeled 'only' show number who responded to a single wave of the survey administration and not to the other wave. For example, "I 4 only" are students who responded to the first survey in grade four, but not to the second survey; 'II 5 only' responded to the second survey in grade five, but did not participate in the first survey.

These single survey students serve as control groups for checking characteristics of the longitudinal sample. For example, with some limitations, one can compare characteristics and scores of students who left the school after one year or entered as new students with the characteristics and scores of students in the longitudinal sample.

The sample includes students who are at critical points of their schooling--entrance from elementary to middle school (grade 5 in survey one to grade 6 in survey two) and from middle to high school (grade 8 to grade 9) as well as non-transitional students in middle school or high school for both surveys (grades 6-7 and grades 11-12). Grade 12 may be a pivotal year in schooling for the demands on students for postsecondary plans.

Teacher survey. Each year the students were surveyed, an anonymous sample of teachers returned mail surveys to the research site. The first survey included 254 elementary and 268 secondary teachers, and the second survey included 192 elementary and 181 secondary teachers. The teachers are identified by school and grade level only, so there is no way to associate information supplied by the teachers with individual students in a specific classroom. The data provided by the teachers has been most useful for validating measures derived from student reports by grade level, and for the historic data teachers provided on the architectural design and educational program characteristics of their schools for five previous years.

Study design. The total population sampling permitted interesting design and analysis opportunities. First, multiple matrix sampling was employed. This technique enables the researcher to administer different questionnaires to random subgroups of students so that many related,

independent and dependent measures can be included in a fixed-time (one hour) survey. Each group of respondents remains large enough to assure that subgroup analyses can proceed. In the first survey, six forms and in the second survey, three forms of the questionnaire were administered containing true-false, multiple choice, sociometric and open-ended questions. A basic set of items for the total sample was exactly the same on all forms across the two surveys. All other subsets of items were administered to sizeable random subsamples; every combination of important items or scales was answered by at least one-sixth (and more often one-third) of the sample. The questionnaires were arranged by form prior to administration so that a random distribution was assured. Second, the total population longitudinal sample permitted the study of student friendship selection and influence patterns because the students chosen as friends were within the survey population, and all measures were available for the students and their friends. Finally, the large total sample permitted useful numbers of siblings to be identified, so that some tests could be conducted of the validity of measures of family environments.

The study incorporates several basic designs of survey research. The data collections are cross-sectional and longitudinal. The samples of students and teachers permit sociometric, school-level, contextual and individual level analyses. The longitudinal collections include trend, cohort, and panel data. Many opportunities exist, then, for exploration, description and explanation of the socialization of youngsters in school and at home through adolescence.

Sample characteristics. The cooperating district in Maryland

included small city, suburban, and rural communities. The district was chosen because it was one of few in the nation that had developed significant alternative school environments at both the elementary and secondary levels. Moreover, these educational programs had been operating for up to six years, and so represented a stable reoganization of some schools in the county, with students attending distinct environments for a relatively long time. Table 2 provides detailed characteristics of the district in comparison with the United States and the U.S. Urban Fringe. (The sampled district would be considered urban fringe--a Standard Metropolitan Statistical Area, SMSA, that excludes a central city, populated by about 27% of the U.S. population.) Table 3 presents more detailed characteristics of the student population for the 1974 survey. Although the average family in the sampled district is more economically and educationally advantaged than the average American family, the sample is diverse, with significant proportions of the population at all economic and educational levels. We must be cautious about generalizing results of this research to extremely disadvantaged populations, due to the economic and educational advantages of the sample.

Data Collection Procedures

Administration. Student surveys were administered by a special staff trained by the Center for Social Organization of Schools. Two administrators were assigned to each classroom, or one administrator per twenty students in large group (cafeteria) settings. Teachers were requested and agreed to leave the area of administration so their presence would not influence student responses. A standard explanation was presented to the students describing the purpose and procedures of the survey, the confidentiality of responses, and the option of participation.

Table 2

Comparison of the Sampled County Population Statistics with United States and U.S. Urban Fringe[a]

		Sampled County	U.S.	Urban Fringe
1.	Race (% white)	91%	88%	
2.	Age (% 18 years or older)	60.8%	65.6%	
3.	Median age	26.7	28.3	
4.	Median school years completed	12.4	12.1	12.3
5.	Farm (% of population)	3.0	1.3	
6.	Percent urban	34.8	73.5	
7.	Percent males employed as			
	Professional/Manager	36.4	23.2	
	Clerk/Sales	24.8	25.1	
	Craftsmen/Foremen	14.0	13.9	
8.	Per capita income	$3,819	$3,119	$3,745
9.	Median family income	$13,461	$9,586	$13,877
10.	Family income, percent:			
	Less than $3,000	3.8%	10.3%	
	$3,000-4,999	4.4%	10.0%	
	5,000-6,999	6.7%	11.9%	
	10,000-14,999	29.6%	26.6%	
	15,000-24,999	32.2%	16.0%	
	Over 25,000	8.8%	4.6%	

a/ From U.S. Department of Commerce, 1972, for comparisons at time of survey administration.

Table 3

Characteristics of Sample by Grade Level[a/]

Grade	6	7	9	12
N (1974)	1698	1570	1457	935
Gender				
% male	50.3	51.0	49.0	47.3
% female	49.7	49.0	51.0	52.7
Race				
% white	88.4	87.7	89.7	88.6
% black	11.6	12.3	10.3	11.4
Parents' education[b/]				
% 24 or more years completed	72.5	68.9	61.7	59.7
% under 24 years completed	27.5	31.1	38.3	40.3
Location of School Attended				
% rural	12.4	12.2	12.9	14.5
% suburban	49.9	50.8	55.3	72.3
% small city	37.7	37.0	31.9	13.2
Standardized Achievement				
Name/date	ITBS-1973 [c/]	ITBS-1974	ITBS-1974	TAP (Reading) 1974
Grade Equivalent				
Range	2.1-9.1	4.0-11.5	4.3-12.6	18-79[d/]
Average National %ile	54.5	49.9	50.6	--

a/ Data are for sample of students surveyed in 1974. Statistics for the longitudinal sample are about equivalent.
b/ Years of schooling completed by mother and father combined.
c/ Scores are reported for ITBS scores of these students in grade 5. They are untested in grade 6.
d/ For grade 12 standard scores only are reported.

Confidentiality of the data. Each survey was conducted in accordance with federal, school district, and university regulations on the protection of human subjects. The procedures included the filing of an H.E.W. special institutional assurance for the use of human subjects, and gaining approval of the study design and questionnaire by (a) the county school administrators and school board, (b) the university committee on the protection of human subjects, (c) the National Institute of Education, and (d) the Office of Management and Budget (OMB No. 51-R1037).

Student names were replaced with code numbers that were needed to merge the first survey data with the follow-up survey responses and with supplementary tests and records. After all mechanical merges were completed, the information linking students' names and their code numbers was returned to the cooperating school district, so that no one can make connections between individuals and responses. Results of analyses are reported as grouped data, as is typical in sociological studies.

These precautions against an invasion of privacy were part of the normal protection of participants in survey research. Current requirements for research on children in schools include obtaining signed permission slips from the parents of students surveyed. This additional requirement has restricted the nature and extent of research and evaluation in schools by creating barriers to obtaining representative samples. At this writing, the department of HEW is reconsidering the necessity of "overprotecting" human subjects when the school district requests and monitors the research and when students are at no unusual risk. An adequate level of protection against physical or psychological harm and assurance of confidentiality of responses are necessary conditions for research.

The proposed revisions of the rules by HEW that recognize a school's right to evaluate its own programs could assist research on school effectiveness and on the socialization of students.

Measures

The chart below summarizes the major measures of this study and the number of data collections for each. All measures were obtained from students and from school records at the individual level. A common core of items was duplicated exactly on both surveys and for all students to assure a rich source of longitudinal environmental and outcome measures. However, there are some limitations to the data. Not all items of all scales are identical in both survey waves, nor are all items indentical for elementary and secondary students. The elementary level survey was shorter than the secondary school survey due to time restrictions. Some dependent measures were improved and lengthened on the second survey. The composition of the scales, factor analyses, and reliability statistics are available in the original reports or from the author.

Measure Independent Variable	Survey	Brief Description
Background		
. Gender	1, 2	Female, male
. Race	1	Black, white (obtained from survey 1 and school yearbooks for most new students in second survey)
. Parents' education	1, 2	Years of school completed for mother and for father
. Items in the home	1	23-item indicator of material possessions.
. Size of family	1	Number of siblings
. Ability Current IQ scores	2	Verbal and nonverbal scores on IQ test administered with achievement tests
Early IQ records	1	Earliest (Grade 3) IQ scores recorded on school records as available for a subsample of students.

Family Authority		
. Family decision-making style	1, 2	12-item scale of student participation in decision-making at home, with reliability coefficient of .71.
. Rules at home	1, 2	14-item scale of number of definite rules at home, with reliability coefficient of .75.
School Authority		
. Openness of instructional program		
Student survey	1, 2	28-item index measuring aspects of shared teacher-student decision making in four academic subjects. Scale shows distinct factors and significant between-school variation at all grade levels.
Supplementary measure, student survey	1, 2	A 24-item scale (not subject specific) detailing the aspects of shared teacher-student decision making represented in 28-item index.
Teacher survey		
Openness of instruction	1, 2	Similar to 28-item index of students. Used to validate student perceptions.
Architectural openness	1, 2	Descriptive index on school building--extent of open space and regular architecture.
. Classroom decision-making style	1, 2	10-item scale of student participation in class, with reliability coefficient of .70. Parallel in content to measure of family decision making style but with reference to the teacher.
Combined Environmental Patterns		
. Two-year patterns and levels of change in students' experiences in family and school environments		Uses measures of openness of instruction, classroom decision-making, family decisionmaking, and family rules.
. Duration of attendance in differently structured schools		Patterns of attendance for up to 5 years were obtained from student questionnaires, teacher survey and school records to give history of experiences in schools with contrasting authority structures.

. Interaction Variables Person-environment (trait-treatment) and environment-environment interaction effects are tested using all theoretically defensible combinations of background-by-school, background-by-family, and family-by-school variable combinations.		Interaction variables included ability x openness, family x instructional openness, family x classroom decision making, sex x school environment measures, SES x school variables, etc.
Dependent Variable	Survey	Brief Description
(On the two surveys some items of these measures are duplicated exactly, but in most cases the full scale is not exactly the same because of improvements made to the measures in the second survey.)		
Affective Measures		
. Self-reliance	1, 2	18-item scale measuring degree of social approval or explicit direction required by students, with reliability coefficient of .70.
. The Quality of School Life Scale (QSL)		
Short scale (Total sample) Full scale (Subsample)	1, 2 2	27-item scale measuring student satisfaction, commitment to school work, reactions to teachers, with reliability coefficient of .87. (Epstein and McPartland, 1976, 1977c.) A short form of this scale (5-items) with a reliability of .67 was duplicated exactly on the two surveys.
. College plans	1, 2	Single-item indicator of plans for future education.
. School anxiety	1, 2	5-item scale of degree of tension and worry in school, with reliability coefficient of .53.
. Disciplinary adjustment	1, 2	9-item scale of extent of trouble students get into in class, with reliability coefficient of .77. Separate items are available on cutting class and school, and on suspension.

. Prosocial classroom behavior	1, 2	5-item scale on the students' attention to "ideal" classroom behaviors, with reliability coefficient of .63.
. Self-esteem	1, 2	4-item index of students' estimate of personal worth, with reliability coefficient of .58.
. Control of environment	1, 2	9-item scale of personal determination over events in one's own life, with reliability coefficient of .68.
Students' friendships and peer status		
. Best friends in school	1, 2	Students named up to three best friends. Friends were also in survey sample.
. Student nominations	1, 2	Students nominated others who are popular, self-reliant, realistic, or who fool around in class.
. Estimates of the attitudes of other students	1, 2	30-items about other students are parallel to items of the measures of self-reliance, prosocial behavior, and satisfaction with school life for comparisons of "I" and "other students."
Teacher reports		
. Teacher nominations	1, 2	Teachers nominated students high and low in self-reliance and satisfaction with school life.
. Teacher satisfaction with school conditions	2	13-items on school resource availability and opinions on teaching.
Achievement Measures		
. Standardized Achievement Tests		
ITBS (regular school test program)	1	For students in grades 6, 7, 9 in second survey.
ITBS (regular school test program)	2	For students in grades 5, 7, 9 in Wave 2.
TAP (special test administration)	2	For students in grade 12, reading subtest only.
ITBS or TAP (administered one year before this study started)	School records	Earlier achievement scores were obtained for students who were in grades 5, 7, 12 in Wave 2. Thus, at least two achievement scores are available for each grade level.

Measure	Survey	Brief Description
. Report card grades	1, 2	Student reports and official records of English and math grades.

. Other single-item and multiple-item indicators were included in the questionnaires and have been used in varied reports. These include: academic subject preference, perceived fairness of teachers' grades, perceived rewards for carefulness and creativity in work, own leadership status, extracurricular activities, absences and lateness, hours spent on homework, pride in work, occupational orientations, attitudes towards rules and laws, open-ended comments, about school, times family has moved, parents' pressure on student, parents' opinions of the school, and twelfth grade activities completed to make decisions about college attendance.

Some features of the measures.

1. Many tests were conducted to validate student reports. A sample of teachers provided estimates of the openness of the instructional program; teachers also provided nominations of students with particular characteristics. These data were used to validate the reports of students about their school environments and their self-reports on attitudes and behavior. Additional data from official school records were used to validate student self-reports about report card grades. Finally, to address the issue of how well student self-reports reflect actual conditions of family socioeconomic status and family authority practices, tests were devised comparing responses of real and random (simulated) siblings. Significantly higher correlations of scores were obtained for real siblings on all measures about the family. These and other logical and statistical checks attest to the high quality of the survey data.

2. The data were collected at the individual level so they can be aggregated for issues appropriately addressed at the school or

classroom levels. All environmental measures and most dependent measures are continuous variables. These features of the longitudinal data permit attention to changes in the environment experienced by students that may affect their attitudes and achievements.

3. Subject-specific information was collected on the environments of the teachers' classes to which students were assigned. Data on subject-specific classroom environments can be used as independent variables with subject-specific outcome measures to conduct more rigorous, explanatory tests that extend the analyses of general or average environmental effects on students. For example, within a school and grade, some students may participate in academic decisions more in their English classes than in their math classes, or vice versa. The outcomes measured (satisfaction and/or achievement in math or English) can be examined for patterns of unique subject-specific relationships and compared with more general estimates of influence.

4. Some of the environmental and dependent variables are useful as mediating variables for specific tests of alternative theories of the influence of school and family authority structures on student development. For example, the formal organization of the openness of the instructional program may influence the teachers' classroom decision-making style which, in turn, may influence student outcomes (Epstein and McPartland, 1979). Similarly, the structure of student peer groups may mediate classroom environmental effects on student attitudes and achievements (Epstein, 1978). The broad coverage of family and school structures, processes, peer group characteristics, student background and abilities, and affective and academic dependent measures, means that a number of different "effects models" can be tested to extend our knowledge about socialization through adolescence.

Results of Longitudinal Analyses

This section summarizes results from three sets of exploratory analyses using longitudinal data. First, stability coefficients were used to chart the experiences of students on the measures of environments and outcomes. Second, students were categorized according to level of change on the measures of family and school authority conditions. Differences in outcomes are noted for students who, for their grade level, experienced below, within, and above expected levels of environmental change. Third, regression analyses were conducted that compare cross-sectional and longitudinal environmental effects using students' initial scores on both environmental and outcome measures. The analyses reported in this section include only the 4033 students in the secondary school sample at the time of the 1974 survey.

Stability coefficients. While adolescence is often thought of as a period of change, little has been done to document the stability or instability of diverse student behaviors or of the environments that affect behavior during this period. Table 4 outlines the mean scores and standard deviations on family and school environmental measures. Across the grades, these measures move in the direction of more participation, fewer regulations, and more responsibilities for the students. Figure 1 shows the increasing stability of each of the environmental measures across the years of adolescence. Coefficients of stability for the two family environmental measures increases from .4 to .6. (Bloom's (1964) gauge for "stability" is a coefficient of at least .50). The stability coefficients of openness of school instruction cover the range of possibilities--from .01 to .95 (reflecting the different feeder and transition patterns from

TABLE 4

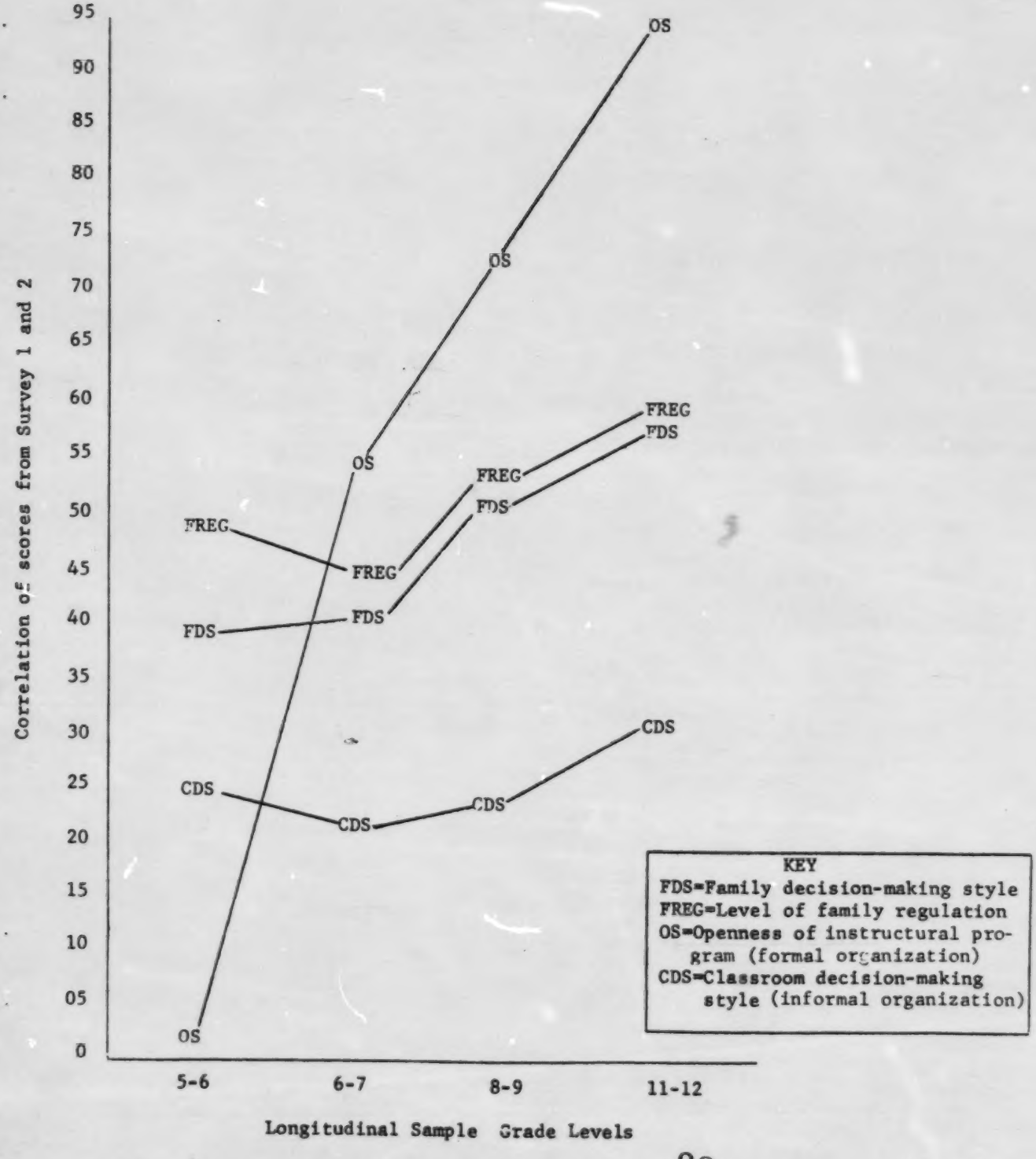
Mean scores and standard deviations on family and school environmental measures, for longitudinal sample by grade level. [a/]

Survey 1 and 2	Family and School Authority Measures			
	Participation in Family Decisions	Level of Family Regulation	Openness of Instruction	Participation in Classroom Decisions
Grade 5	5.10 (1.82)	6.94 (2.88)	58.01(18.83)	4.86 (1.73)
Grade 6	6.51 (2.16)	7.56 (2.76)	64.15(20.30)	5.02 (2.05)
Grade 6	6.49 (2.04)	6.99 (3.03)	61.88(15.46)	4.75 (1.57)
Grade 7	6.68 (2.26)	8.01 (2.83)	66.05(17.61)	5.10 (2.15)
Grade 8	6.60 (2.31)	8.04 (2.81)	76.79(28.74)	4.87 (1.98)
Grade 9	6.80 (2.52)	8.64 (2.74)	80.38(33.76)	5.70 (2.18)
Grade 11	7.04 (2.54)	9.25 (2.72	73.47(39.09)	5.41 (1.97)
Grace 12	7.89 (2.50)	10.14 (2.62)	80.81(33.95)	6.86 (2.17)

[a/] N's for grade 5/6 = 1274; grade 6/7 = 1170; grade 8/9 = 1011; and grade 11/12 = 578.

Figure 1

Stability coefficients for family and school environment measures, by grade level



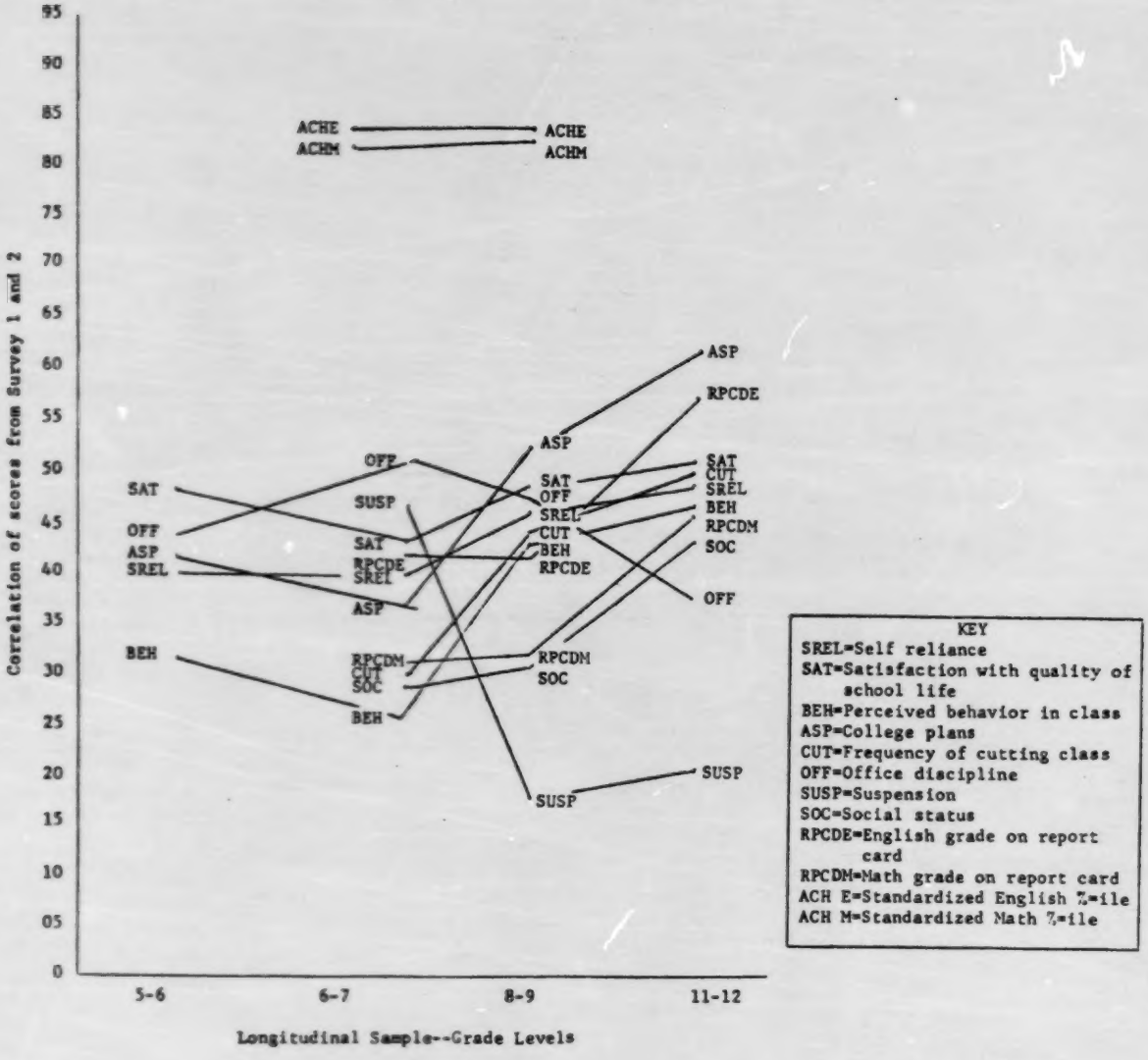
elementary grade 5 to middle school grade 6, and the typically stable conditions of education for students from grade 11 to grade 12). Classroom decision-making style coefficients range only from .2 to .3. The low coefficients reflect the differences in teachers' individual styles from one year to the next, even under relatively stable classroom structures. The four environmental measures have similar reliability coefficients--about .7--and so corrections for attenuation have not been made.

Figure 2 shows a general increase in the stability coefficients for positive behaviors and achievements and a decrease in the coefficients of troublesome behavior across the years. One of the outcome measures--standardized achievement in English and in Math--approaches unity (coefficients of .8 or higher) by the seventh grade. Other measures are considerably less stable, but the coefficients increase as events and conditions influence their direction. Measures, such as college plans, report card grades, satisfaction with school, self-reliance, and social status, become more stable (perhaps more trait-like) and give direction and quality to student attitudes and motivations. Other measures become more unstable or unpredictable as the student matures. For example, a measure of suspension from school shows a decrease in stability from about .45 to .20, and the coefficient for discipline by the office decreases from about .50 to .35. Nesselroade and Baltes (1974), using different measures of some of the same concepts show comparable trends in stability coefficients to those reported here. Schonfeld (1971) finds similar patterns in a study of students in French schools.

None of the coefficients for affective measures is as stable as

Figure 2

Stability coefficients for affective and achievement outcomes, by grade level



achievement, due to the specificity of the items and to a degree of measurement error associated with single item indicators and self-report data. However, this is also due to the fact that affective measures and success indicators like report card grades are more easily modified by environmental conditions and individual experiences. This means that for some purpose low stability coefficients and patterns of increasing and decreasing stability are as informative as high stability coefficients. For most students, the "maladjustments" to school life become less trait-like and more a consequence of the coincidence of events, experiences and reactions.

To summarize, environmental and outcome measures tend to become more stable as students mature. There is, however, considerable room for change on affective outcomes. Even for achievement scores, about 30% of the variance remains to be explained by factors other than students' earlier achievement scores. Stability coefficients offer gross estimates of the continuity of environments and behaviors, and the potential for change. Next, we examine whether family and school authority practices influence the direction of student scores on the varied academic and attitudinal outcomes.

Effects of levels of change in environments on outcomes. Students were classified according to the amount of change they experienced over one year on the family and school environmental measures. They were assigned to categories: below, within, and above the expected rate of change (± one standard deviation) on each measure according to the average for their grade level. In these analyses, being above the average rate of change in an environment does not mean that the student is necessarily in an "open" or participatory school or family. It does mean that the student is moving toward more participation from whatever the starting place at the time of the first measurement. The categories

of change for the four environmental measures are relatively independent. Students experiencing a positive change in their family environment are not necessarily experiencing positive change in the openness of instruction in school. Even within environments, change in extent of participation in family decisions may have little to do with change in level of family regulation; change in openness of school structure is not coincident with change in level of participation in classroom decisions. Other checks show that environmental change scores were not significantly related to other important, stable variables such as parents' education or IQ. Comparisons of outcome scores were made for students below vs. within average change, within vs. above, and below vs. above average change on each environmental measure for each outcome.

Table 5 specifies which groups differ significantly in their current scores on the affective and achievement outcomes. An F-statistic indicates that students in the higher, positive environmental change category for each comparison have significantly higher scores on the dependent variable; an F-statistic in parentheses means that the students in the lower environmental change category have the higher outcome scores.

The first panel of the table compares scores of students experiencing different rates of change in family decision making. The F-statistic (17.50) in column 1 indicates that, on the average, students within the expected rate of change in family participation score significantly higher than students below the expected rate of change. The F-statistic (9.62) in column 3 indicates a significant difference in scores on the measure of self-reliance in favor of students experiencing above average rates of change in family participation. Column 2 is blank because the difference in scores for the within vs. above comparison is not significant.

Table 5

Significant F-statistics for multiple comparisons on affective and achievement outcomes of students below, within, and above the expected level of change for their grade level on measures of family and school environments

Key to multiple comparisons
1 = comparison of scores below and within expected change categories
2 = comparison of scores within and above expected change categories
3 = comparison of scores below and above expected change categories

Affective Outcomes	Family Decisions			Family Regulation			Openness of Instruction			Classroom Decisions		
	1	2	3	1	2	3	1	2	3	1	2	3
Self-Reliance	17.50		9.62	4.80	(13.45)					4.25	8.29	12.82
Perceived Quality of School Life (QSL)	14.88		10.08							6.07		3.82
Office Discipline	26.10		9.74			26.68	(5.89)		(4.05)			4.77
School Adjustment	18.41		7.43		(4.43)				(4.55)	6.93		4.05
College Plans	9.47	(6.85)			(5.77)		10.86	15.03	30.38			
Achievement Outcomes												
Standardized English	9.31				(31.46)	(8.33)	8.72	4.36	15.57		11.18	9.48
Standardized Math		(5.79)			(18.26)	(19.86)	45.37	10.99	61.89		11.99	11.93
English Report Card	9.34						5.08	7.22	13.46	3.83		6.11
Math Report Card								13.22	8.83			

To summarize the table, the first panel shows that students experiencing within and above expected levels of change in family decision making for their grade level tend to have higher scores on most affective measures. Compared with students below the expected level of change, these students have more positive self-reliance, satisfaction with school, disciplinary adjustment, and college plans. The affective outcomes are more responsive than achievements to change toward more participation at home.

The last panel of the table shows a similar pattern of more positive affective scores for students experiencing within and above expected levels of change in classroom decision making. There is also evidence of significantly different achievements (English and math achievement scores and English report card grades) for these students over students experiencing below expected levels of change.

The middle two panels of Table 5 present contrasting patterns. The second panel shows few significant differences on affective measures for students experiencing different levels of change in family regulations. The differences that do emerge for achievements are in the opposite direction from the differences noted previously. That is, students experiencing below and within expected levels of change toward fewer family rules have higher math and English achievement scores than students experiencing above average change toward fewer family rules. The third panel of the table indicates few significant differences and contradictory patterns of scores on affective measures for students experiencing different levels of change in openness of instruction. Students experiencing within or above average change in openness have more ambitious college plans, but those experiencing less than expected change have better behavior in school. On achievement measures, more positive change in openness almost

uniformly means higher achievement scores and higher report card grades in math and English.

The same tests of contrasts were conducted for subgroups of initially high and low achieving students. The pattern of results for each subgroup were similar to those reported for the total sample, and the few exceptions were unsystematically scattered across the subgroups of high and low achievers.

These analyses show that (1) students who experience change toward more family participation but not fewer family rules consistently have more positive scores on affective measures; (2) students who experience change toward more classroom participation show more positive affective and achievement scores; (3) students who experience change toward more "open" or participatory instruction have higher achievement scores and higher college plans than students not experiencing such change.

The patterns suggest that positive environmental change is, itself, clearly important. Families or schools that withhold or prevent student participation may be seriously limiting the potential for positive student development. Unlike studies that look only at change on dependent measures, this exploration suggests that the coincidence of the developmental qualities of environments and student behavior is an important area for research.

Effects of family and school environments on student behavior and attitudes. A different kind of information is obtained when we use longitudinal data to statistically control for students' initial scores on both the independent and dependent variables to consider the continuous (or continued) influence of environments on behavior. A standard multiple regression approach is employed to treat prescores as covariates (Kerlinger and Pedhazur, 1973). Here, we elaborate the typical model by

including environmental as well as dependent variable prescores from the first survey.

Table 6 presents the results of the longitudinal analysis of effects of school and family authority structure on three of our measures--self-reliance, satisfaction with school life and achievement. For each outcome, the standardized regression coefficients and percent of explained variance are reported for two sets of equations. Columns marked "b (CURR)" are based on equations that include only the four current school and family environmental measures. Columns marked "b (LONG)" add students' initial scores on the independent and dependent measures to the original equation. The latter model poses one of the most rigorous tests for studies of environmental influence. It focuses attention on the impact of the environment on behavior during the time between measures, by holding constant the earlier, influential associations.

As expected, in every case, the best determinant of a dependent measure is the earlier measure of the same behavior. Including the initial scores automatically increases the explained variance of an outcome and serves as a statistical control for other accumulated influences that helped to determine the initial score. There is a pattern of increased percent of variance explained and greater difference in variance explained in the two sets of equations for the oldest students, whose initial scores represent a longer accumulation of environmental and experiential influence.

The top panel of Table 6 shows the significant standardized coefficients for each grade for the outcome of self-reliance. The strong coefficients of the b (CURR) equations that indicate the advantage

Table 6

Cross-sectional (CURR) and longitudinal (LONG) effects[a/] of family and school decision making on student outcomes, by grade level[b/] [c/]

	Grade [d/] 6		7		9		12	
	b(CURR)	b(LONG)	b(CURR)	b(LONG)	b(CURR)	b(LONG)	b(CURR	b(LONG)
Self-reliance								
Family decision-making	.220	.149	.231	.185	.242	.159	.132	--
Family regulation								
Openness of instruction						.088		.067
Classroom decision-making	.160	.133	.152	.104	.083	.044	.111	.070
Initial self-reliance	--	.349	--	.361	--	.367	--	
R^2	8.97	21.13	8.95	22.26	7.59	21.17	4.13	24.50
Satisfaction with Quality of School Life (English Class)								
Family decision-making	.266	.204	.189	.171	.263	.163	.091	--
Family regulation	.210	-.171	-.178	-.083	-.132	-.070	--	--
Openness of instruction	.140	.133	--	--	.169	.133	.136	.081
Classroom decision-making	.327	.271	.370	.324	.273	.222	.366	.263
Initial satisfaction	--	.266	--	.360	--	.294	--	.430
R^2	23.73	31.84	20.51	37.08	21.28	36.35	19.67	39.91
Standardized English Achievement								
Family decision-making					.045			
Family regulation								
Openness of instruction	NA		.087	.040			NA	
Classroom decision-making			.190		.192	.089		
Initial achievement				.827		.822		
R^2			4.92	71.38	6.01	70.70		

[a/] b(CURR) = regression of attitudes on current family and school environmental measures; b(LONG) = regression on current and initial environment and initial attitudes.

[b/] Only significant standardized regression coefficients for comparisons within grade levels are reported (unstandardized coefficients more than twice their standard errors).

[c/] R^2's increase from 0% to 2.7% when background factors of sex, race, parents' education and IQ are added to the b(LONG) equations. Patterns of effects are not affected.

[d/] N's for self-reliance by grade are: 1237/1149/906/[illegible]73; for satisfaction: 610/634/622/299; for achievement: 1107/939.

of participation in decision making in school and at home at each grade level, are reduced in magnitude but are still significant after the initial environment and initial self-reliance scores are added to the equation. At each grade level, except grade 12, for each set of equations, the family decision-making environment exerts a stronger, continued influence on self-reliance than does the classroom decision-making environment. Level of family regulation is not important for this outcome. Openness of instruction (formal organization of participation) has significant, continuous influence on self-reliance for students at the high school level.

The middle panel summarizes the coefficients for the outcome of student satisfaction with their English class. With few exceptions, family and classroom decision-making processes and openness of instruction (formal organization of participation in English class) maintain strong, independent relationships with student attitudes, even when earlier family and school measures and earlier reactions to school life are included in the equations. For this outcome, however, at each grade level, the classroom decision-making environment is as or more important for positive student reactions than the family environment. Although participation in family decisions is a positive influence on student attitudes, few rules at home is a negative influence. This is not a statistical artifact, and is discussed more fully in other reports from this study (Epstein and McPartland, 1979, 1977a, b; and Epstein, 1981). Some restrictions on childrens' behavior along with participation in decision making at home have continuous positive consequences on student reactions to school life. For grade 12, we note that as attitudes become more predictable, the variables measuring family environment become less influential, in part because of their influence on the development of

earlier attitudes. Nevertheless, school conditions of participation and decision-making continue to influence students' attitudes to their classes.

The bottom panel summarizes the coefficients of importance for the outcome of standardized (ITBS) achievement test scores in English. The measures of the family environment show little significant independent influence, and the longitudinal school influences are minor and slightly different for each grade level. The only consistent influence is that of the initial achievement scores. Achievement is the most stable, least manipulable outcome. Because of this, it is suggested that achievement scores should not be the only outcome of interest in studies of environmental effects on adolescent accomplishments.

The longitudinal equations do not markedly change the conclusions suggested by the cross-sectional equations in Table 6. However, the longitudinal data identify patterns of influence that are continuous and convincing throughout adolescence, and acknowledge the predictive and explanatory importance of the students' initial scores. The comparisons suggest that relatively small environmental effects may be all that can be expected at any time point, but the cumulative nature of small effects may be more important than results from cross-sectional analyses are able to indicate.

Summary and Discussion

Three types of exploratory analyses with longitudinal data describe conditions and effects of important socializing environments on student behavior. Stability coefficients show that achievement scores are already stable by grade 7 but most other behaviors and attitudes have not reached a steady state. Some of the changeable outcomes may

influence the direction and quality of students' lives, and therefore are worthy of attention at school. The coefficients show the dynamic nature of family and school environments during adolescence.

Second, students were identified who were below, within, and above the average range of change on family and school environmental measures from one year to the next. There is, on the average, an increase with each chronological year in the opportunities for responsibility and decision making given to students by parents and teachers. Compared with other students, students below average in the amount of change in participation they experience have significantly lower scores on several important affective and achievement outcomes. Families or schools that withhold or prevent a continuing increase in student participation may restrict positive student development.

Third, multiple regression analyses reveal a pattern of continuing significant, independent influence on students by family and school environments, especially on affective outcomes. In every grade, with initial scores on environmental and dependent measures taken into account, student participation in family and/or school decisions has a continuing positive influence on self-reliance and attitudes.

The results of the longitudinal analyses of family environments extend the earlier cross-sectional research of Elder (1963, 1968), Becker (1964), Baumrind (1970) and others showing the importance of shared parent-child decision making at home for the development of children's independence. The analyses of school environments extend the recent report by Rutter et al. (1979) of consistent relationships between school processes and children's progress at the secondary school level. Future research should not ignore the theoretical and practical

importance of studies of the long-term effects of contrasting school and family authority structures on student development.

The family and school are important socializing environments well beyond early childhood. Throughout adolescence, environmental conditions--the result of family and school practices--are important for the development of positive behaviors. These and other analyses suggest that sequential and steady change in the direction of increased participation by youngsters in decision-making at home and at school may be essential for continued progress in developing mature attitudes and behaviors. It is clear that change in student behavior can be more fully understood with concurrent consideration of change in the real environmental demands for growth. Neither the student nor the socializing environment is static.

Longitudinal data permit attention to the net effects of current environments on behavior. However, longitudinal data do not always offer a clear research advantage (see Cronbach and Furby, 1970 and Heise, 1975). These data do not eliminate (and sometimes exacerbate) problems of measurement error and collinearily of variables. Often, no identifiable starting point for an environmental treatment is possible. The history of students' experiences may be as important as a particular treatment, so even when a starting point can be identified, "unmeasured variables" may pose real problems for analysis. Statistically, it is the custom to examine school and family environments as if the changes between any two time periods were representative of the continuous progress of environmental and behavioral change. This may be an inaccurate representation of the socialization process. The combination of cross-sectional and longitudinal data across several

cohorts and the use of theoretically-based environmental measures linked with multiple dependent variables can assist researchers in understanding and representing the dynamics of the socialization process.

References

Averch, H. A., Carroll, S. J., Donaldson, T.S., Kiesling, H. J., and Pincus, J. How effective is schooling? A critical review of research. Englewood Cliffs, N.J.: Educational Technology Publication, 1974.

Bachman, J. G. Youth in transition. Blue print for a longitudinal study of adolescent boys. (Vol. 1). Ann Arbor: University of Michigan, Institute for Social Research, 1969.

Baumrind, D. Socialization and instrumental competence in young children. In W. W. Hartup (Ed.), The young child: Reviews of research. Washington, D. C.: National Association for the Education of Young Children, 1970.

Becker, W. C. Consequences of different kinds of parental discipline. M. L. Hoffman and L. W. Hoffman (Eds.), Review of child development research. New York: Russell Sage Foundation, 1964.

Blau, P. M. Parameters of social structure. In P. M. Blau (Ed.) Approaches to the study of social structure. New York: Free Press, 1975.

Bloom, F. S. Stability and change in human characteristics. New York: John Wiley and Sons, 1964.

Cronbach, L. J. and Furby, L. How we should measure change - or should we? Psychological Bulletin 1970, 74:68-80.

Cronbach, L. J. and Snow, R. E. Aptitudes and instructional methods. New York: John Wiley, 1977.

Eckstein, H. and Gurr, T. R. Patterns of authority: A structural basis for political inquiry. New York: John Wiley and Sons, 1975.

Elder, G. Parental power legitimation and its effect on the adolescent Sociometry, 1963, 26:50-65.

Elder, G. Adolescent socialization and personality development. Chicago: Rand McNally, 1968.

Epstein, J. L. Friends in school: Patterns of selection and influence in secondary schools. Report 266. Baltimore: Center for Social Organization of Schools, 1978.

Epstein, J. L. The quality of school life. Lexington, Mass.: D.C. Heath/ Lexington Books, 1981.

Epstein, J. L. and McPartland, J. M. The effects of open school organization on student outcomes. Report 194. Baltimore: Center for Social Organization of Schools, 1975.

Epstein, J. L. and McPartland, J. M. The concept and measurement of the quality of school life. American Educational Research Journal, 1976, 50:13-30.

Epstein, J. L. and McPartland, J. M. Family and school interactions and main effects on affective outcomes. Report 235. Baltimore: Center for Social Organization of Schools, 1977a.

Epstein, J. L. and McPartland, J. M. Sex differences in family and school influence on student outcomes. Report 236. Baltimore: Center for Social Organization of Schools, 1977b.

Epstein, J. L. and McPartland, J. M. The quality of school life scale. Boston: Houghton-Mifflin, 1977c.

Epstein, J. L. and McPartland, J. M. Authority structures. In H. Walberg (Ed.) Educational environments and effects. Berkeley: McCutchan, 1979.

Flanagan, J. C. and Jung, S. M. Progress in education: A sample survey 1960-1970. Palo Alto: American Institute for Research, 1971.

Heise, D. R. Causal analysis. New York: John Wiley and Sons, 1975.

Hurn, C. The limits and possibilities of schooling. Boston: Allyn and Bacon, 1978.

Jencks, C., Smith, M. Acland, H., Bane, M., Cohen, D., Gintis, H., Heyns, B., and Michelson, S. Inequality: A reassessment of the effect of family and schooling in America. New York: Basic Books, 1972.

Karabel, J. and Halsey, A. H. Power and ideology in education. New York: Oxford University Press, 1977.

Kerlinger, F. N. and Pedhazur, E. J. Multiple regression in behavioral research. New York: Holt, Rinehart and Winston, 1973.

Marjoribanks, K. Family environments. In H. J. Walberg (Ed.), Educational environment and effects. Berkeley: McCutchan, 1979.

McDill, E. L. and Rigsby, L. C. Structure and process in secondary schools: The academic impact of educational climates. Baltimore: The Johns Hopkins University Press, 1973.

McPartland, J. M. School authority systems and student motivation. Paper presented at the annual meeting of the American Educational Research Association, 1977.

McPartland, J. M. and Epstein, J. L. Open schools and achievement: Extended tests of a finding of no relationship. Sociology of Education, 1977, 42:133-144.

McPartland, J. M. and Karweit, N.L. Research on educational effects. In H. Walberg (Ed.) Educational environments and effects. Berkeley: McCutchan, 1979.

Nesselroade, J. R. and Baltes, P. B. Adolescent personality development and historical change, 1970-1972. Monographs of the Society for Research in Child Development , 1974, 39: No. 1.

Nunnally, J. Research strategies and measurement methods. In J. R. Nesselroade and H. W. Reese (Eds.) Life span developmental psychology: Methodological issues. New York: Academic Press, 1971.

Rutter, M., Maughan, B., Mortimore, P., and Ouston, J. Fifteen hundred hours: Secondary schools and their effects on children. Cambridge: Harvard University Press, 1979.

Schonfeld, W. R. Youth and authority in France: A study of secondary schools. Beverly Hills: Sage Professional Papers in Comparative Politics. Report 01-014, 1971.